MARCH 1977 $1.00*
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- TV Game - Gun Circuit
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Project 804

SELECTA-GAME

Many readers have asked us to design a gun project for the Selecta-Game. However this is not economically worthwhile if designed to our standards. Here we look at a commercially-available gun and give sufficient details for the experimenter to build up a similar unit.

SINCE PUBLICATION OF THE TV game project in November 1976 many thousands have been built by our readers. Many of these people have asked us to publish the rifle circuit for use with this unit. The trouble with designing a rifle or gun is that it involves mechanical work and optics. Also the quantity of light obtainable from the TV screen is very small and the differential between being on-target and off is very small.

We had therefore decided not to publish a rifle project but then Dick Smith gave us a plastic gun which included a pickup transistor and a lens.

What we have presented here is the gun and the circuit used in a commercial unit and it does work. Its limitations are that it will work only over a short range (about 1 metre) and the sensitivity control is extremely sensitive. Due to these limitations we decided not to present this as a complete project as we normally do but we are just printing the circuit to allow you to decide on your own means of construction.

If better optics are used longer range and less critical adjustment should result.

Modifications

The control pots on the Selecta-Game wear out quickly in continuous use unless wire-wound types are used. However, wire-wound pots of the correct value are not readily available, so we have designed a circuit which will allow 10 k pots (which are easily obtained) to be used. This involves modifying the game to add two transistors, two diodes and four resistors.

Some of the ICs do not like to operate on 6 V and as the batteries do not last long this has proven troublesome. Therefore we suggest you use a 9 V battery (or 6 x 1.5 V cells). This may change the internal adjustment slightly, necessitating re-alignment.

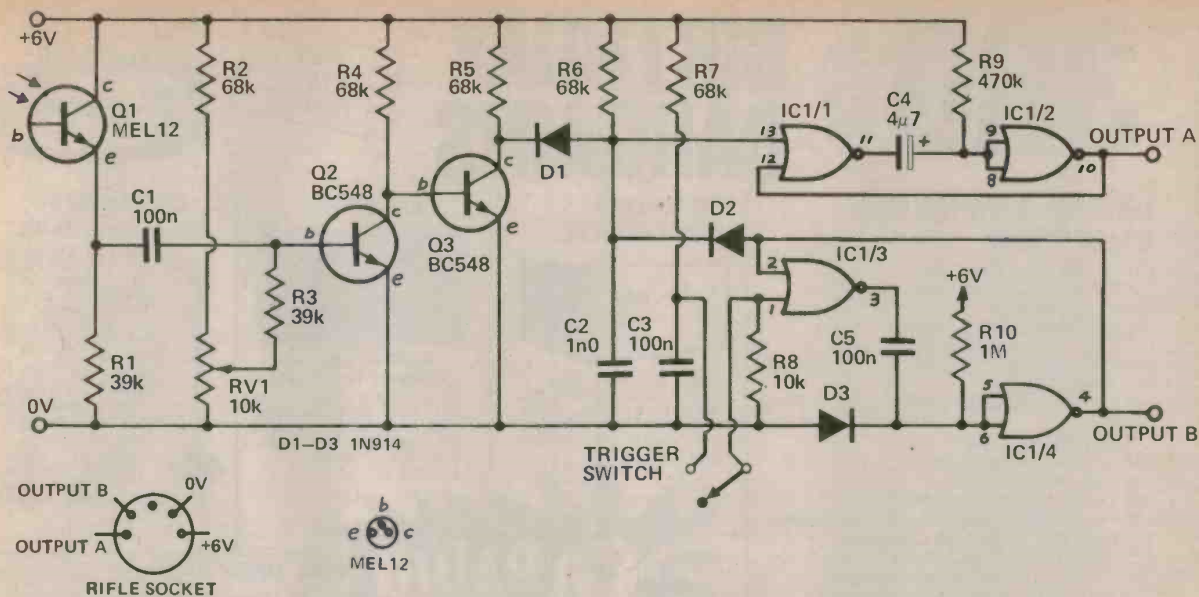
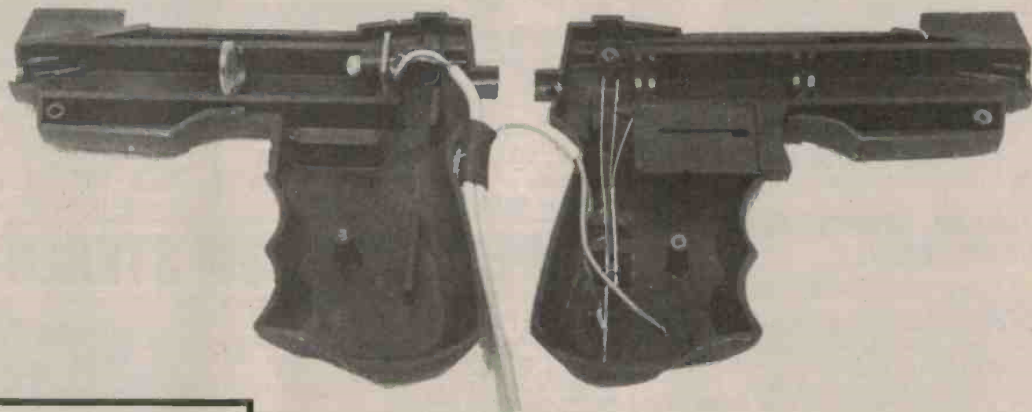



Fig 1. Circuit diagram of the gun.

This is the plastic gun assembly used in a commercial game. These guns (including lens and switch, but not the phototransistor) are available from Dick Smith Electronics for $6.50 each.

PARTS LIST
TV GUN

Resistors all ½ W 5%

R1	39 k
R2	68 k
R3	39 k
R4-R7	68 k
R8	10 k
R9	470 k
R10	1 M

RV1 Potentiometer 10 k lin rotary

Capacitors

C1	100 n polyester
C2	1n0 "
C3	100 n "
C4	4 µ7 16 V electro
C5	100 n polyester

Semiconductors

Q1	MEL 12 *
Q2,3	BC548
D1 - D3	1N914
IC1	4001 (CMOS)

* Q1 is part of gun.

Fig 2. Modified circuit to allow wirewound potentiometers to be used.